COASTAL CONNECTIONS

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COASTAL MANAGEMENT PROFILE

Dolly Garza
Marine Advisory Agent
Alaska Sea Grant
(Retired December 2006)

Hometown: I was born and raised in Ketchikan, Alaska, descended from two tribes of Alaska Natives, the Haida and the Tlingit.

Where you live now: After 23 years of service with Alaska Sea Grant, I moved to British Columbia, Canada, where my husband lives.

Family: Husband Russ Jones and a large extended family.

Education: B.S. in fisheries biology, University of Alaska; M.S. in fisheries management, University of Washington; Ph.D. in marine policy, University of Delaware.

Your duties while at Alaska Sea Grant: The outreach program I started recognizes traditional uses of ecological resources by Alaska Natives and works to preserve our hunter-gatherer heritage. I also served on the Alaska Sea Otter and Sea Lion Commission.

Most fulfilling aspect of your job: Working with the marine mammal staff at

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FOCUS

Boundary Making for Marine Managed Areas

Writing an airtight boundary description for a marine managed area demands methodical research and impeccable documentation.

Increasingly sophisticated Global Positioning System (GPS) and geographic information system (GIS) tools have been a boon to coastal resource managers and cartographers, who are now able to map sensitive marine areas and the factors that threaten them with unparalleled accuracy.

But map-making's great leap forward also imposes added complications, particularly for managers or policy makers seeking to create boundaries in marine managed areas:

- In most cases, those who map boundaries on *terra firma* can reference unchanging landmarks, but marine boundary makers must pinpoint accurate coordinates within dynamic marine environments;
- U.S. coastal areas that were sparsely populated just a few decades ago are now sites of contentious legal claims by numerous stakeholders, and these stakeholders must be part of the boundary making process;
- Older, "paper-map" technologies, perfectly accurate for their era, seldom pinpointed coordinates with the precision of today's digital mapping technologies, a factor that can lead to mapping inconsistencies and potential headaches for boundary makers.

All these considerations require coastal resource managers to map marine boundaries with great care.

Conceptualize the Boundary

To begin the boundary making process, you must identify jurisdictions that apply to the marine managed area and note any boundaries already entered into law. During this process, uncover and apply any statute that could affect the area and ensure that the boundaries you create will not conflict with local, state, U.S., and international laws.

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the U.S. Fish and Wildlife Service and Alaska National Marine Fisheries Service. They support co-managing marine mammals with native people and trust the ability of Alaska Natives to act in the best interests of natural resources.

Most challenging aspect of your job: Educating agency people who move here and immediately try to implement decisions without understanding our subsistence hunting-and-gathering culture.

One work-related accomplishment that makes you proud: I've tried to support Alaska Natives and rural people so that they recognize their own strengths and believe that people at federal agencies will listen to them. If I've done my job for the past 20 years, there shouldn't be a large hole in my absence.

One personal accomplishment that makes you proud: I'm happy with the books I've published through Alaska Sea Grant (*Common Edible Seaweeds in the Gulf of Alaska* and others) because the average reader can understand and use the information.

Hidden talent: I weave traditional Haida baskets using cedar bark and spruce root.

"Academically, I didn't start out in fisheries management," says Dolly Garza. "But my uncle, who was a professor, told me during a crossroads in my career, 'We need someone to speak for us and watch out for our interests.' Since then, I've always wanted to be the fisherman's voice and the voice of Alaska Natives, to make sure that their needs are met. I've retired from Alaska Sea Grant but intend to stay involved in these issues."

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"It's also very important that you identify your exact purpose in mapping the marine boundary," says Henry Norris, program administrator with the Florida Fish and Wildlife Conservation Commission. A former cartographer, Norris was one of the contributors to *Marine Managed Areas: Best Practices for Boundary Making*, a handbook recently published by the National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center.

"What are you trying to do? Are you trying to protect certain species? Deal with pollution issues? Be sure to think the whole thing through. Another important early step is meeting with stakeholders. It might be a bit chaotic in the first few meetings, but if they're not part of the process, they might oppose you later on," notes Norris.

Decide early on which marine features you will use to mark the boundary. The fluid environment you are mapping makes this step a critically important one.

"If you can reference a fixed structure, such as a lighthouse, that is good, because it is an absolute coordinate," says Norris.

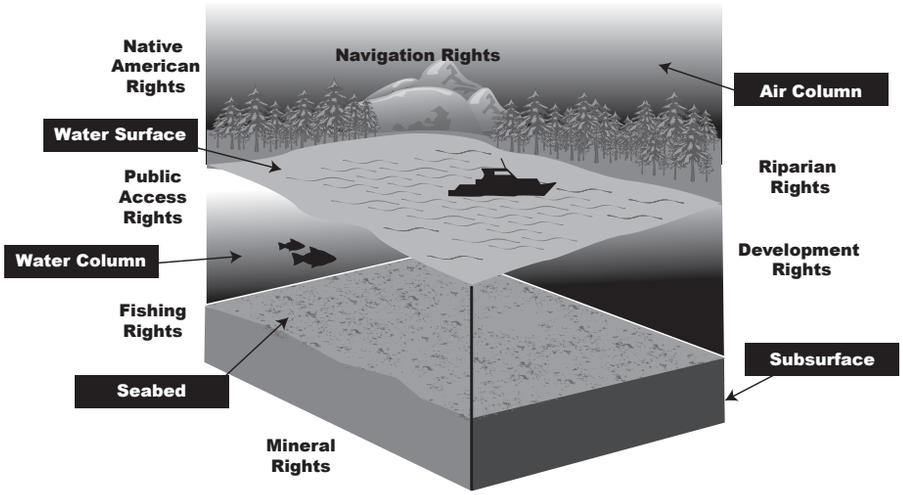
"More often in marine areas, you do not have a monument or discrete marker, so be very careful in how you delineate the boundary. For instance, you don't want to use a buoy as a coordinate, because it can drift or get hit by a ship. Similarly, you will not want to reference 'shoreline,' because 'shoreline' is an ambiguous term and low tide is in a different location from high tide," he adds.

One boundary reference that can work well for a marine managed area is an official tidal datum such as the mean high-water line. "If you reference mean high water and the shoreline moves due to erosion or accretion, the boundary can be designed to move with it," says Norris.

Describe the Digital Boundary

Crafting a clear, technically accurate boundary description—one consistent with both legal and modern mapping standards that includes the intent of the marine managed area and associated rights—might be the most challenging writing task you will ever undertake. Your approach will help determine the boundary's ultimate accuracy and enforceability.

"In legal documents for marine areas, you will sometimes find



Credit: M. Sutherland 2003

Depending on the circumstance, you might need to list a number of potential rights when creating your boundary description.

descriptions like 'the boundary ends approximately at the 300-foot line,'" says Norris. "Generalities like 'approximately' should never appear in boundary descriptions."

Your marine managed area is not a flat surface, because water is three-dimensional. Accordingly, your description might need to recognize rights on the water's surface, the submerged lands below, or even the airspace above. Factors to consider might include natural resource rights within the water column, sand and gravel rights on the seabed, oil and gas rights within the subsoil, radio spectrum leasing within the airspace, or a wind or tidal energy facility that crosses all levels.

Generate the Digital Boundary

Gather the best available data when developing your digital boundary. Any data gathered for enforcement, regulatory, or jurisdictional purposes must be traceable to a source, so provide metadata (data about your data) when finalizing your boundary descriptions. Your metadata must note the content, quality, and source of your data, as well as steps taken in gathering it. Without this documentation, your boundaries will always be vulnerable to challenge.

According to Norris, two final steps are necessary to confirm the accuracy of your boundary descriptions.

"Once you have a good draft boundary description, make sure you follow your own instructions by creating the boundary using GIS or another mapping software," says Norris. "This is a very simple way to see if your description can be easily followed and to determine whether it actually describes the area you intend. Finally, have someone outside the project review your boundary descriptions and calculations, just to make sure no errors were made."

Boundary Making Handbook Provides "Best Practices" Guide

Marine Managed Areas: Best Practices for Boundary Making, available from the NOAA Coastal Services Center, provides coastal resource managers with today's best practices for creating marine boundaries.

This free, 66-page handbook helps boundary developers write accurate descriptions within a geographic information system (GIS) framework for local, state, or federal marine managed areas in U.S. waters.

The handbook consolidates useful tips by boundary experts at federal and state agencies across the nation. It was written by the Federal Geographic Data Committee's Marine Boundary Working Group and sponsored by the National Marine Protected Areas Center.

Other useful features in the handbook include

1. Legal descriptions relevant to marine managed areas,
2. A concise primer on marine boundary terminology,
3. A guide to boundary-line types,
4. A checklist for writing a boundary description, and
5. Appendices listing common acronyms, federal data sources, and technical articles on boundary making.

You can order a printed copy of the handbook, or download an electronic copy, by viewing *www.csc.noaa.gov/products/mb_handbook/*.

LEARN THE METADATA ESSENTIALS

Are you trying to create marine boundaries that will stand strong against legal challenges? The following Web sources can guide you in the essential tasks of documenting and publicizing metadata.

Federal Geographic Data Committee (FGDC) Home Page
www.fgdc.gov
This site offers guidance on submitting metadata to a clearinghouse and on many other issues.

U.S. Geological Survey (USGS) Metadata in Plain Language
http://geology.usgs.gov/tools/metadata/tools/doc/ctc/
This document provides easy-to-understand descriptions of FGDC standard elements.

Graphical Version of the *Content Standard for Digital Geospatial Metadata*
http://biology.usgs.gov/fgdc.metadata/version2/
This tool uses different colors and graphical styles to emphasize various elements of the FGDC metadata standard.

The NOAA Coastal Services Center's Coastal Metadata Web Site
www.csc.noaa.gov/metadata/
This Web site includes metadata standards, tools, training materials, and partnership and funding opportunities.

Coastal Connections is a publication of the National Oceanic and Atmospheric Administration Coastal Services Center, produced for the coastal resource management community. Each issue of this free bimonthly newsletter focuses on a tool, information resource, or methodology of interest to the nation's coastal resource managers.

Please send us your questions and suggestions for future editions. To subscribe or contribute to the newsletter, contact our editors at

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NEWS AND NOTES

Coastal GeoTools 2007 to Be Held in Myrtle Beach

Learn about existing and emerging technologies that aid coastal resource management professionals at Coastal GeoTools 2007, the NOAA Coastal Services Center's biennial technology conference. Coastal GeoTools 2007 will be held in Myrtle Beach, South Carolina, March 5 to 8, 2007. For more information, visit *www.csc.noaa.gov/geotools/*.

Protecting Western Wetland, Riparian Areas Is Focus of Workshop

The Association of State Wetland Managers (ASWM) is sponsoring a "how to" workshop for land trusts, local governments, and state and federal agencies in the western U.S. "Strengthening the Roles of Land Trusts and Local Governments in Protecting and Restoring Wetlands and Riparian Areas" will take place June 3 to 6, 2007, at the Treasure Mountain Inn in Park City, Utah. To learn more, view "Future ASWM Workshops and Symposiums" at *www.aswm.org.*

Ecosystem-Based Network Supports Coastal and Marine Managers

The new Ecosystem-Based Management Tools Network, developed and hosted by NatureServe, makes available ecosystem-based tools, data, case studies, funding opportunities, and notices on upcoming trainings and conferences. For more information, visit *www.ebmtools.org.*

Transitions

Leon Cammen, previously the acting director of NOAA's National Sea Grant College Program, has now been named permanent director… **Beth Ebersole**, formerly the Integrated Ocean Observing System coordinator for NOAA's Estuarine Reserves Division, has been named manager of the Maryland Chesapeake Bay National Estuarine Research Reserve… **Dr. Stephen Bortone**, previously the director of the Marine Laboratory at the Sanibel-Captiva Conservation Foundation, has become director of Minnesota Sea Grant… The former manager of Gray's Reef National Marine Sanctuary, **Reed Bohne**, is now director of the Northeast and Great Lakes Region for the National Marine Sanctuary Program… **Greg McFall**, research coordinator, and **Cathy Sakas**, education coordinator, are currently serving as co-acting managers for Gray's Reef National Marine Sanctuary.

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